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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Registration No. 53201-1 (DEB No. 5002).
Methyl Bromide - Proposed Label Change for Melons
(No Accession Number)

FROM: Nancy Dodd, Chemist *Nancy Dodd*
Tolerance Petition Section II
Dietary Exposure Branch
Health Effects Division (H7509C)

TO: Jeff Kempter, PM #32
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THRU: Debra Edwards, Ph.D., Acting Section Head
Tolerance Petition Section II
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Health Effects Division (H7509C) *Debra Edwards*

Introduction

Ameribrom, Inc. submits a request that its six labels for use of methyl bromide and/or methyl bromide/chloropicrin mixtures on muskmelons be revised to list "all melons excluding watermelon" instead of "muskmelon." Ameribrom, Inc. indicates that its labels previously listed "melons," but were changed to list "muskmelon" at EPA's request.

The Registration Division requested that all labels with the word "melon" be changed to "muskmelon" as a result of the Residue Chemistry Chapter (dated March 28, 1986) of the Methyl Bromide Registration Standard, which indicated that some labels for preplant soil fumigation list "melons" on the label while others list "muskmelons". In the Residue Chemistry Chapter of the Methyl Bromide Registration Standard, DEB indicated that "since the tolerance for this preplant use applies only to muskmelons, all labels should be amended to specify only "muskmelons" unless, of course, data are provided allowing tolerances in or on other melons or a crop group tolerance.

DETAILED CONSIDERATIONS

In 40 CFR 180.34(f)(9)(ix), "melons, including hybrids (Cucumis melo)" includes cantaloupe, casaba, crenshaw, honeydew melons, honey balls, mango melon, muskmelon, and Persian melon. Representative commodities for the cucurbit vegetables group are "cucumbers, melons (cantaloupe or muskmelon), and summer squash."

Webster's Third New International Dictionary (Merriam-Webster, 1986) contains the following definitions:

muskmelon: a usu. sweet musky-odored edible melon that is the fruit of a trailing or climbing Asiatic herbaceous vine (Cucumis melo) : as a: any of various green-fleshed or orange-fleshed melons of small or moderate size with superficially netted skin and often fluted surface that constitute a distinct variety (C. melo reticulatus) and include most of the muskmelons cultivated in No. America - distinguished from 'cantaloupe' (sense 1) b: cantaloupe 1 c: winter melon.

cantaloupe 1: a muskmelon (Cucumis melo cantalupensis) grown chiefly in Europe and having a hard ridged or warty rind and reddish orange flesh that is eaten raw as a fruit 2: any of several muskmelons resembling the cantaloupe; broadly: muskmelon.

winter melon: a muskmelon (Cucumis melo inodorus) having a smooth rind and a sweet white or greenish flesh that lacks a musky aroma.

A reference source (G. Davis, T. Whitaker, G. Bohn, and R. Kasmire, "Muskmelon Production in California," California Agricultural Experiment Station Extension Service Circular 536, U. of CA, 1965) contains the following information on muskmelons:

"Muskmelons include several botanical varieties, each containing one or more horticultural varieties. The varieties of economic importance for California are listed here:

Botanical varieties:	Horticultural varieties
	(Cantaloup
	(PMR 45
	(PMR 450
	(Others: PMR 5,
Cantaloups and	(PMR 6, V 1,
Persians (var.	(SR-91, Campo,
<u>reticulatus</u>)	(Jacumba
	(Persian
	(Persian
	(Pershaw
	(Honey Dew
	(Casaba
Winter melons	(Golden Beauty
(var. <u>inodorus</u>)	(Crenshaw
	(Santa Claus"

A reference source (D. Considine, P.E. and G. Considine, "Muskmelon," Foods and Food Production Encyclopedia, pages 1317-1325, Van Nostrand Reinhold Company, Inc., 1982) contains nomenclature and variety information on muskmelons as follows:

"In the classical sense, the word cantaloupe (or cantaloup as preferred by some authorities), is misused in the United States and a few other countries. The true cantaloupe, seldom grown in the United States, is Cucumis melo var. cantalupensis, a plant named after Cantalupo, Italy, where it was grown in Europe for the first time. This type of melon is popular in Europe.

In the United States, the word cantaloupe has been traditionally applied to C. melo var. reticulatus, which is also called the nutmeg muskmelon or the netted muskmelon. In particular, cantaloupe in the United States refers to hybrids developed from C. melo var. reticulatus. Well over 100 varieties have been developed since 1900. Persian melons are also of this classification.

The other major classification is C. melo var. inodorus and this includes what some authorities call "winter melons" and embraces the honeydew and Casaba types.

Table 1* may be helpful toward showing a general organization of the many kinds of muskmelons.

Varieties. As shown by Table 1,* muskmelons include several botanical varieties, each containing one or more horticultural varieties. Cantaloupes and Persian melons have medium-size fruits, with a corky, netted surface, shallow sutures, aromatic fruit flesh that may be green, but more often is orange or deep salmon-orange. Winter melons have large fruits, with smooth or wrinkled skin (not netted) and green, white, or pinkish nonaromatic flesh. Winter melons can be stored for a month or more after harvest. Generally, cantaloupes and Persian melons produce an abscission layer between stem and fruit at maturity, the so-called "slip." No such abscission layer is produced by winter melons."

The Foods and Food Production Encyclopedia also indicates that muskmelons are produced primarily in California (65-67%), Texas (15-15.5%), and Arizona (9.5-10%).

Another source ("Muskmelons," McGraw-Hill Encyclopedia of Food, Agriculture, and Nutrition, 1977) indicates that all muskmelons "differ only in varietal characters and all intercross freely."

Conclusions

1. The term "muskmelon" includes all melons belonging to the species Cucumis melo. Cantaloupes, Persian melons, honeydew melons, casabas, crenshaws, mango melons, and their hybrids are some varieties of muskmelons.
2. The term "muskmelon" excludes watermelon since watermelon belongs to the species Citrullus vulgaris.
3. The term "muskmelon" is a more accurate term than "melons" to refer to Cucumis melo melons.

*Table 1 is attached as Attachment 1.

Recommendation

To avoid confusion of users, DEB recommends that the registrants be allowed to use the following to refer to Cucumis melo melons on their labels:

muskmelon (all Cucumis melo melons;
excludes watermelon).

Note to PM

To avoid confusion, 40 CFR 180.34(f)(9)(ix)(A) regarding melons should be revised. "Melons" should be replaced with "muskmelon" and "muskmelon" should not be listed as if it were one of eight melons. The revised version would then read as follows:

muskmelon, including hybrids (Cucumis melo) (including cantaloupe, casaba, crenshaw, honeydew melon, honey balls, mango melon, Persian melon).

40 CFR 180.34(f)(9)(ix)(B) "Representative Commodities" should also be revised to read "Cucumber, muskmelon, and summer squash."

Attachment 1: Approximate Classification of Muskmelons

cc: N. Dodd (DEB), PP#5F3198, Methyl Bromide Registration
Standard File - W. Boodee, RF, SF, E. Eldredge
(ISB/PMSD), Circulation (6)

RDI:D. Edwards:4/20/89:R. Loranger:4/20/89
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Table 1. Approximate Classification of Muskmelons

Cucumis melo var. cantalupensis

TRUE CANTALOUPE Commercially important in some countries, but not in the United States.

Cucumis melo var. reticulatus

CANTALOUPE Term used in the United States to describe nutmeg and netted muskmelons, as well as Persian melons.

Commercially Important Varieties

Hale's Best Group: Hale's Best 35, Hale's Best 936, Hale's Best Jumbo

PMR Group:¹ PMR 5, PMR 6, PMR 45, PMR 450, SR-91, V-1

Rocky Ford Group

Others: Campo, Jacuma, Late Shippers

Representative Garden Types

Burpee Fordhook Gem, Burpee Hybrid, Delicious 51

Dulce (resistant to powdery mildew)

Edisto 47 (adapted to southeastern United States)

Gulf Stream (resistant to powdery mildew)

Knight (adapted to Maryland-Virginia region)

Mainerock Hybrid

Perlita (resistant to powdery mildew)

Planters Best Jumbo, Pride of Wisconsin

Queen of Colorado (adapted to northeastern United States)

Sweet Air

PERSIAN MELON Late-maturing melons. Introduced from Armenia.

Golden Pershaw, Persian

Cucumis melo var. inodorus (As a general class, sometimes called "winter melons")

HONEYDEW MELON Popular, late-season melon. Grown in France for many years.

Floridew, White Antibes (French)

¹PMR = abbreviation for powdery mildew resistant.

CASABA MELON

Probably originated in Mediterranean region.

Crenshaw, Golden Beauty, Santa Claus

Cucumis melo var. chito

MANGO² MELON or
ORANGE MELON

Also called lemon cucumber. Not commercially important.

Cucumis melo var. flexosus

SNAKE or SERPENT
MELON

A twisted and coiled species of little economic importance.

Cucumis melo var. saccharinus

PINEAPPLE MELON

Commercial importance essentially limited to pickles and preserves.

²Mango melon is not to be confused with the fruit of the Indian mango tree (Mangifera indica), described in entry on Mango.